National Institute of Environmental Health Sciences

Climate change, biofuels, and global food security

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Abstract:

There is a new urgency to improve the accuracy of predicting climate change impact on crop yields because the balance between food supply and demand is shifting abruptly from surplus to deficit. This reversal is being driven by a rapid rise in petroleum prices and, in response, a massive global expansion of biofuel production from maize, oilseed, and sugar crops. Soon the price of these commodities will be determined by their value as feedstock for biofuel rather than their importance as human food or livestock feed [1]. The expectation that petroleum prices will remain high and supportive government policies in several major crop producing countries are providing strong momentum for continued expansion of biofuel production capacity and the associated pressures on global food supply. Farmers in countries that account for a majority of the world's biofuel crop production will enjoy the promise of markedly higher commodity prices and incomesNote1. In contrast, urban and rural poor in food-importing countries will pay much higher prices for basic food staples and there will be less grain available for humanitarian aid. For example, the developing countries of Africa import about 10 MMt of maize each year; another 3–5 MMt of cereal grains are provided as humanitarian aid (figure 1). In a world where more than 800 million are already undernourished and the demand for crop commodities may soon exceed supply, alleviating hunger will no longer be solely a matter of poverty alleviation and more equitable food distribution, which has been the situation for the past thirty years. Instead, food security will also depend on accelerating the rate of gain in crop yields and food production capacity at both local and global scales.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Security

Food/Water Security: Agricultural Productivity, Food Access/Distribution

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Malnutrition/Undernutrition

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Policy/Opinion

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content